

Cup Run (Snowshoe Mountain Resort property)

This project starts below a confined culvert and concrete crossing off the Snowshoe Road towards the golf course in Hawthorne Valley. The stream transects the valley at the end of a golf course fairway when an impaired C4 stream then changes to a G4 stream that is semi-confined by the golf course fairway, as well as the bedrock colluvial hill slope to the east. The stream then flows towards the Snowshoe visitor's center as a D4 stream, where it braids into two forks below where it is again confined by two golf cart crossings. The crossing to the west is similar to the uppermost crossing with corrugated culverts made of concrete fill with stone masonry. This crossing does not allow for sediment and bedload passage, particularly at high flows. Thus, the channel has aggraded and created a new overflow channel to the east. The cart crossing to the east is newly constructed and looks as if the channel may be large in capacity. This site may also aggrade with future floods, but may relieve some of the excess shear stress and bank erosion in the channel to the west.

Cup Run flowing through the golf course at Snowshoe Mountain Resort



The target restoration objectives are as follows:

1. Stabilize to a C4 stream by using NSD techniques to maintain grade control, add in-stream habitat, and rebuild a native riparian floodplain adjacent to the channel. A stable yet braided channel will be maintained at the lower end of the reach for flood overflow purposes.
2. Retrofit all stream crossings to function better.
3. Establish and maintain a minimum of 30 feet of riparian buffer on both streambanks to provide low-cost, long-term stream stability for the project site.

The G4 stream type often has a floodplain, a sinuous channel, and lower gradient that will cause it to continue to erode its banks; it is often an incised channel where the previous floodplain becomes a terrace. The D4 stream type has very wide braided channel with bank erosion, no entrenchment and low gradient. The C4 Stream Type is defined as an entrenched, meandering, gravel-dominated, riffle/pool channel with a well-developed floodplain found in areas such as U-shaped glacial valleys or very broad and coarse alluvial valleys. (Rosgen et al., 1996; Wang, 1997).

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Estimated techniques and units for Cup Run

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| Reach length (ft) | 3,093 |
| Constructed riparian buffer (sq. ft) | 106,702 |
| Brush mattresses (ft) | 5,077 |
| Excavation or bankfull bench creation (cu yd.) | 9,632 |
| Structures | 9-12 |
| Fencing | 0 |
| Potential culvert retrofit | 3 |
| Water gap | 0 |

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